

REMARKS

The office action issued by the Examiner and the citations referred to in the office action have been carefully considered.

Claims 1-4, 6, 9, 18, 21, 22, 24, 27 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi (US 2003/0024813 (hereafter "Taniguchi '813") in view of Nakamura et al (USP 4,024,036). The examiner argues that, with respect to claims 1 and 2, Taniguchi '813 discloses a hydrogen sensor comprising first and second electrodes 31 and 32 and an electrolyte 11 where the first and second electrodes are made of different materials (par. 0077 and 0078) and that these different materials would inherently have different chemical potentials or absorption-dissociation properties towards hydrogen gas. In particular, he says, Taniguchi '813 discloses that one of the electrodes can be an Al or an Al alloy while the other electrode can be a material like Pt or Pd (par. 0077). These choice of materials of Taniguchi '813 overlap the claimed materials of claims 4 and 22. The hydrogen gas detection of Taniguchi '813 is based on an electromotive force (fig. 7B and par. 0078). He admits that Taniguchi '813 does not explicitly disclose the use of a phosphorus tungsten or molybdenum acid. However, Nakamura, he says, discloses that both phosphorus tungsten and molybdenum acids are known proton electrolytes for hydrogen sensors. See abstract; col. 1, 11. 7-12; and col. 4, 1. 54 - col. 5, 1. 1. It would have been obvious, he concludes, to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Nakamura for the electrolyte for another requires only routine skill in the art.

The applicant previously amended claims 1 and 2 to claim the electrolyte also having a reinforcing material. The examiner says that Nakamura discloses that the electrolyte can also contain small amounts of ethylene tetrafluoride powder that improves the bending strength of the electrolyte (col. 6, 11. 18 - 57). Hence, he says, this additional powder would constitute a reinforcing material. However, improving bending strength does not necessarily reinforce a material. It may very well weaken it.

These claims have been further amended to add that the reinforcing material enhances a strength of the electrolyte and an adhesion for the first and second electrode. The ethylene tetrafluoride powder in Nakamura is a fluoride resin and thus enhances only the bending strength of the phosphomolybdic acid material that can be used as an electrolyte at a small amount thereof up to 1 weight % (see Nakamura, col. 6, l. 27 - 58).

On the contrary, the reinforcing material claimed herein means an inorganic material such as glass wool and thus enhances the strength of the electrolyte and the adhesion of the electrolyte for the first electrode and the second electrode (see paragraph [0037] of the present specification. Normally, the strength and adhesion of the electrolyte is increased as the amount of the reinforcing material to be contained in the electrolyte is increased.

Therefore, the ethylene tetrafluoride powder in Nakamura is different from the reinforcing material in the present invention.

As a result, claims 1 and 2 cannot be considered obvious over Taniguchi in view of Nakamura. The dependent claims thereon also are patentable over the combination of Taniguchi in view of Nakamura.

As for the rejection of claims 7 and 25 under 35 U.S.C. 103(a) as being unpatentable over Taniguchi in view of Nakamura and further in view of Makundan et al. (USP 6,656,336), claims 7 and 25 are dependent from claims 1 and 2. Makundan et al. adds nothing to the combined teachings of Taniguchi and Nakamura that would render these claims obvious over the references.

As for the rejection of claims 8 and 26 under 35 U.S.C. 103(a), dependent from claims 1 and 2, as being unpatentable over Taniguchi in view of Nakamura and further in view of Sugiyama et al. (USP 4,704,536), again Sugiyama et al. adds nothing to the combination of Taniguchi and Nakamura that would render these claims obvious over the references.

As for the rejection of claims 10 and 28 under 35 U.S.C. 103(a), dependent from claims 1 and 2, as being unpatentable over Taniguchi in view of Nakamura and further in view of Yun et

al. (WO 01/89021), Yun et al. again adds nothing to the teachings of these references that would render the claims obvious thereon.

As for the rejection of claims 11-16 and 29-34 under 35 U.S.C. 103(a), dependent from claims 1 and 2, as being unpatentable over Taniguchi in view of Nakamura and further in view of Christen et al. (USP4, 390, 869), Christen et al. adds nothing to the combination of Taniguchi and Nakamura that would render these claims obvious over the references.

With regard to the rejection of claims 17 and 35 under 35 U.S.C. 103(a), dependent from claims 1 and 2, as being unpatentable over Taniguchi in view of Nakamura and further in view of Maki et al. (US 2004/0026268), Maki et al. adds nothing to the combination of Taniguchi and Nakamura that would render these claims obvious over the references.

Conclusion

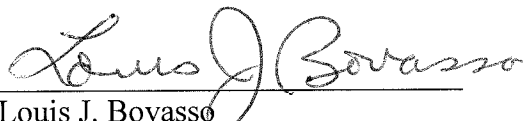
These amendments were not presented earlier since the Examiner has interpreted the powder of Nakamura as equivalent to applicant's claimed reinforcing material. Applicant's reinforcing material is quite different from Nakamura's material which merely improves bending and does not necessarily reinforce. It does not enhance the strength of the electrolyte nor provide an adhesion for the first and second electrode.

If the Examiner still believes all these claims are not allowable, he is respectfully requested to enter this amendment for purposes of appeal. The undersigned is also available to discuss any changes to the claims to render them allowable.

It is respectfully submitted that all of the Examiner's objections have been successfully traversed and that the application is now in order for allowance. Accordingly, reconsideration of the application and allowance thereof is courteously solicited. The Director is authorized to charge any additional fee(s) or any underpayment of fee(s), or to credit any overpayments to **Deposit Account Number 50-2638**. Please ensure that Attorney Docket Number 125141-010100 is referred to when charging any payments or credits for this case.

Respectfully submitted,

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